Service Area / Pressure Zone / Distribution System										
Water Source(s)			TAP 01/ Well #2.							
Location or Description			Service Area Population		No. of Service Connections		Finished Water Storage (Show Capacities)			
							Ground	Elevated	Hydropneumatic	
Entire distribution system.			1,180		338		None	*0.075 MG	None	
Maximum System Pressure		Location	Minimum System Pressure		Location		Free Chlorine Residual (mg/l)		Location	
70 psi		3145 East Lake Shore Drive	41 psi		7316 Northwood Drive		0.5 mg/L		Distribution system	
Flushing Program			Fire Protection Provided?		Current Map Available?		Valve Maintenance Program			Notes and Other Observations
None	Yearly	2 x year	More Often	No	Yes	No	Yes	No Valves	No Program	OK	
			Monthly, except during freezing weather	X			X			X	*The base of the elevated tank is reported to be at 880 feet. The base of the bowl is at 955 feet. The tank is 28 feet high. The overflow for the elevated tank is 4-inches in diameter. The bottom 20 feet of the overflow is constructed of steel pipe, but the remainder is constructed of PVC. The distribution system consists of 8,845 feet of 2-inch galvanized main, 4,677 feet of 4-inch asbestos-cement main, 8,505 feet of 6-inch asbestos-cement main, and 13,646 feet of 8-inch diameter asbestos-cement and PVC main. There is a reported 90 feet of elevation difference between the high and low points of the system.

Hydrant locations with flow pressure below 20 psi - ICC Hydrant Inspection Report for October 1998				
Hydrant Number	Location	Static Pressure	Flow Pressure	Gallons per minute
24	Fawn Lane	52 psi	15 psi	820 gpm
20	Hickory Grove & Fawn Lane	37 psi	17 psi	730 gpm
18	Fawn Grove & S. Of Circle Trail	45 psi	19 psi	775 gpm
7	Oakwood & Shady Drive	45 psi	0 psi	200 gpm
6	Oakwood Drive & Pleasant Drive	30 psi	4 psi	200 gpm
5	Lake Shore Drive	30 psi	3 psi	200 gpm
4	Wooded Shore &Shady Drive	50 psi	8 psi	490 gpm

Operating Reports / Records

Monthly Reports Being Submitted?			Content of Monthly Reports								Notes and Other Observations
			Report for each TAP?		Daily Production from Each Well?		Daily Measured Residuals?		Daily Dosage Calculations?		
Yes	No	Late	Yes	No	Yes	No	Yes	No	Yes	No	
		*X	X		X		X		X		*Daily operating reports are sent one time per year.

Cross Connection control Ordinance						
Does the system have an ordinance?		Date Approved (by IEPA)	Program Enforced?		Do Private Wells Exist in the Service Area?	
Yes	No		Yes	No	Yes	No
X		11-18-1994	X			X

Monitoring

Bacteriological Summary

Monitoring History (Last 12 Months)				Primary Lab	Phone	FAX	
	Raw	Finished	Distribution				
Number of Samples	14	0	13	McHenry Analytical	1-815-344-4044	1-815-344-2208	
Number Satisfactory	14	0	13	Secondary Lab	Phone	FAX	
Number Invalid	0	0	0				
Number Unsatisfactory	0	0	0	None	N/A	N/A	
Fecal / E. Coli Positive	0	0	0	Coliform Monitoring Plan Approved?	All Major Portions of system included in Plan?	Chlorine Residuals taken at Sample Sites?	Monitoring FREE Residual?
				Yes / No	Yes / No	Yes / No	Yes / No
Monitoring Violations	0	MCL Violations	0	X	X	X	X / X

Fluoridation Summary (Last 12 months)

TAP No	No. of Samples	Minimum (mg/l)	Maximum (mg/l)	Average	Violations (list months)	Notes and Observations (Fluoridation)
01	12	0.6 mg/L	2.21 mg/L	0.91 mg/L	March 2000, February 2000, January 2000, November 1999, October 1999, September 1999, June 1999, April 1999	The supply has had a history of not being able to maintain the fluoride dose in the required range. The lab versus operator test results show an average discrepancy of 0.3 mg/L.

Viability / Financial Management

Service Fee (Minimum Charge)	$6.00 per month.	Other source(s) of income used to maintain the water system	None
Direct Charge (cost per 1,000 gallons)	$2.54	How does the utility handle customers who fail to pay water bills?	Overdue notice, final notice, home visit to collect, turn-off water.
Billing Frequency	Bi-monthly	Does the utility have a fund to cover major repairs?	No
ICC Regulated? (Y/N)	Yes	Name and phone no. of person responsible for system repairs	Mr. T.P. Mathews 1-815-653-2961
Date of Last Rate Increase	June 1999		

PWS Basic Facility Characteristics Change Form

Facility Number: **111-5850** Facility Name: **Northern Illinois Utilities, Inc.**
Effective Date: **ASAP**

Current Record		Change To
	No. of Service Connections	338
	Population Served*	1,180
	Coliform Samples (RAW)	1 (Well #2 - ID 20148)
	Coliform Samples (FINISHED)	0
	Coliform Samples (Distribution)	2
	No. of Fluoride Bottles to be sent☆	0
	List TAP No(s) to be monitored for Fluoride	TAP 01
	No. of Coliform Bottles to be Sent	3
	Bottle Recipient Address	Northern Illinois Utilities, Inc. P.O. Box 189 7314 Hancock Drive Wonder Lake, IL 60097

* Basis of Population and/or Service Connection Change (i.e., 100 homes X 3 People):

☆ Complete only if Participant in Lab Fee program and Supply Requests use of IEPA laboratory for analysis.
** Address must be useable for both US Mail and UPS delivery. If Necessary, List Both.

DATE: June 16, 2000 IEPA Personnel: Chris Johnston and Manny Abad

Mail completed form to Marilyn Turner, IEPA/BOW/CAS/#19, Springfield, IL 62794-9276

FYI - Answers to Commonly Asked Questions

The number of distribution samples required is determined by the population served by the water system (35 IL. Adm. Code 611, Table A). Additional distribution samples may be required by IEPA to accommodate separate distribution systems.

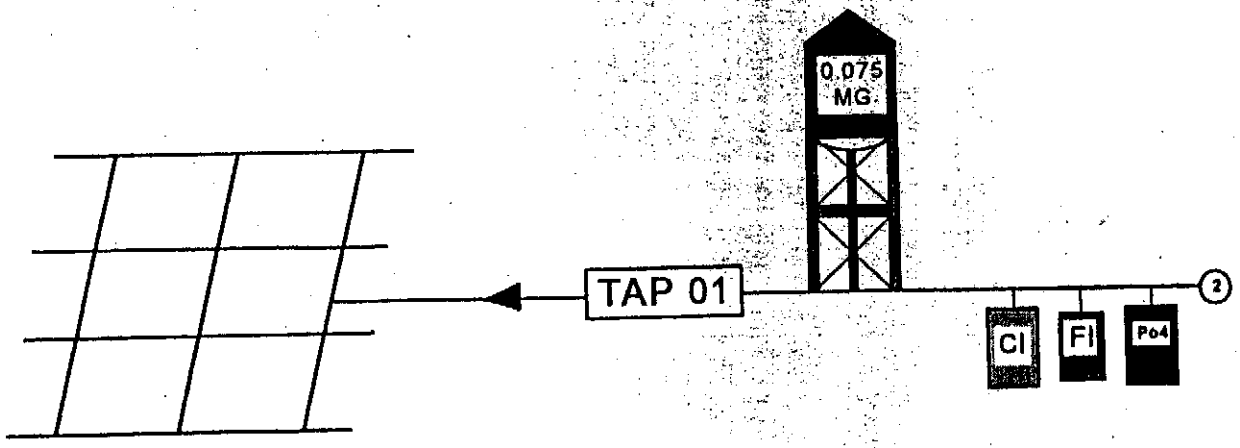
Raw samples are required for systems that add a disinfectant, since problems with the wells or treatment processes may not be detected by distribution samples.

Backup wells that are not in routine use should be monitored quarterly. If an unmonitored well must be used, a boil order must be issued.

Water samples that are **invalidated** by the laboratory cannot be used for compliance. Invalid water samples must be replaced to avoid a monitoring violation.

REPEAT sampling must be provided for ALL distribution samples found to contain coliform bacteria. Repeat sampling consists of three additional samples. One of the three samples should be taken from the location giving the original positive result. A second sample must be collected from an UPSTREAM location that is within 5 service connections, and the third sample taken from a DOWNSTREAM location, that is also within 5 service connections of the original sample point. If repeat samples are not collected, IEPA must "credit" the water system with three additional positive results.

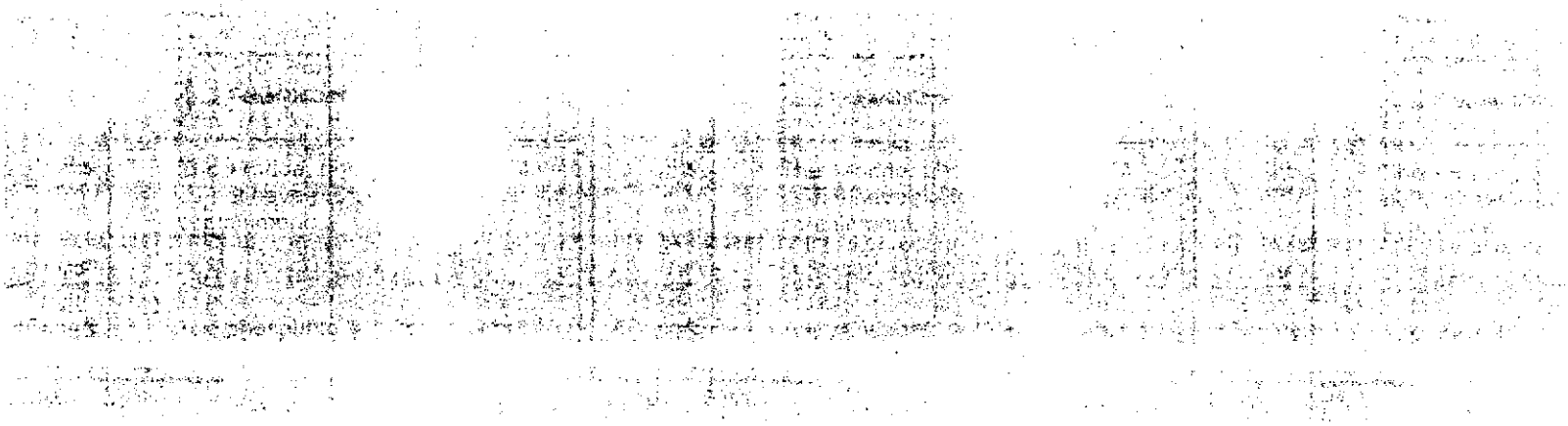
Northern Illinois Utilities, Inc.
McHenry County - 111-5850



Well #2
ID 20148
Status: Active
Capacity: 110 gpm
Aquifer: Sand & Gravel

Colors in accordance with *Recommended Standards for Water Works*, Section 2.14

a:\coreliflow\111-5850.cfl



ATTACHMENT "A"
VIOLATIONS, DEFICIENCIES AND RECOMMENDATIONS

VIOLATIONS OF CURRENT CONSTRUCTION STANDARDS:

1. The reported population is 1,180. Due to the increase in population, the water system must immediately begin collecting two (2) distribution samples for coliform sampling (35 IL. Adm. Code, Section 611, TABLE A). The coliform site monitoring plan must be updated to show where samples will be taken. In the interim, the two distribution samples must be taken from two representative (but different) locations within the system. Please record the street address for the second location until a site ID number can be assigned.

The water company has no problem collecting additional samples to comply with the regulations or by special request. However, it should be noted that for over 60 years that the population was much less than 1,000, only recently with the development of Parker's Highlands and Spring Creek subdivisions, has the population increased to 886.

Considering the U.S. Census, see exhibit, as the best information available, the present population is 337 + 2.63 per household = 886.

2. The raw water from well #2 (ID 20148) has an iron concentration of 1.37 mg/L. The Maximum Contaminant Level (MCL) for iron is 1.0 mg/L. The supply is using polyphosphate for iron sequestration. When the concentration of iron is greater than or equal to 1.0 mg/L, sequestration shall only be used on an experimental basis. (35 IL. Adm. Code, Section 611.300 and Section 4.6.5 of the Recommended Standards for Water Works.)

Reference to code and standards did not indicate a date of enactment or revision. It was the suggestion of the Illinois Public Health Department and the IEPA that the company uses polyphosphate for the iron sequestration. The company was advised, that only if the customers had serious objections, would it be necessary to consider an iron reduction treatment facility. During the past forty years, the customers have found that a point of use treatment unit is more reasonable than a point of supply facility. A current ordered survey will totally support this matter.

3. The supply has only one source of water. The Agency has recommended a second source of water since 1997. All water supplies utilizing groundwater must have a minimum of two sources. A second source will allow the water system to operate in an emergency situation. In addition, well #2 is at its' maximum capacity. Install a second source of water, in accordance with Sections 3.2.1.1 and 3.2.1.2 of the Recommended Standards for Water Works.

Well #2 is not at its capacity. This well can produce 300% or more water with a larger pump. The present pump, which only needs to operate 30% of a 24 hour day to keep the tower full, was sized for economy of operation. In regards to a second well; the company has been seeking a source of water within the jurisdiction of its area, that would have less iron and no other objectionable minerals. Considering that a treatment facility will eventually be built, the main well supplying the system should be with the treatment facility. We are continuing to look for a new source. In the mean time, with reserved pumps and two local well service companies, we have been able to maintain service.

4. The following refers to the overflow for the 75,000 gallon elevated tank:

   A. Permit application number 96-1032 was for the installation of an overflow for the 75,000 gallon elevated tank. This permit application was denied on March 20,1996; however, the overflow was installed. Submit "As-Built" plans to our Springfield Permit Office (1-217-782-1724) and obtain an "As-Built" permit for this improvement (The phrase "as-built" must be clearly printed on the plans). Please reference log number 96-1032 (35 IL. Adm. Code, Section 602.116).

   B. The old overflow stub does not appear to be sealed. If the stub is not sealed, the existing condition may allow dust, dirt, insects, or birds to enter and contaminate the tank. If the overflow stub has been sealed, describe what type. of plug was installed (material used, how installed, etc.), in accordance with 35 IL. Adm. Code Section 653.108 and Sections 7.0.3 and 7.0.10 of the *Recommended Standards for Water Works.*

   C. The ladder for the elevated tank does not have a ladder guard. Ladder guards must be provided for the safety of employees who access the tank. Install a ladder guard or other device to ensure the safety of workers, in accordance .with Section 7.0.12 of the *Recommended Standards for Water Works.* Comply with all Illinois Department of Labor and Occupational Safety and Health Act regulations.

   D. The ladder for the elevated tank is accessible to the public. All water storage structures must be protected from vandalism and trespassers. Install necessary protections such that the elevated tank ladder can only be accessed by water supply personnel, in accordance with Section 7.0.4 of the *Recommended Standards for Water Works.*

   E. At the time of inspection the grass around the wellhouse and elevated tank overflow was very high. All overflow pipes for storage tanks shall be located so that any discharge is visible. Maintain the grass at a sufficient height such that overflow discharge from the elevated tank is visible, in accordance with Section 7.0.7 of the *Recommended Standards for Water Works.*

   The company submitted a permit and the work was ordered. The permit was denied for technical reasons, but the installation was done as ordered. The technical reason was for the complete specifications of the pipe, being material manufacturer, etc. These technical items were not available from the supplier.

5. The facility has "flush valves," (gate valves on the end of uncapped water mains) that discharge below ground. These are cross-connections, since water remaining in the portion of the main behind the gate valve, will be unpotable. At all locations where these "flush valves" are located, in~all flushing devices which discharge above the ground surface and provide a velocity of at least 2.5 feet per second in the water main being flushed, in accordance with 35 IL. Adm. Code Section 607.104 and Section 8.1.6 of the *Recommended Standards for Water Works.*

   The old overflow is plugged. During a recent test of overflowing the tower, no water flowed from this original over flow pipe. The permit requirements did not include a ladder guard when the tank was built. Contractors servicing the tank have their own safety equipment.

   A wood plank will be installed at the bottom of the ladder to make it less accessible. Please note that this tank is going to be replaced.

6. Illinois Commerce Commission flow tests have shown pressure at the following hydrants falls below 20 psi when opened: 24, 20, 18, 7, 6, *5,* and 4. Please notify this office (*1-847-608-3131)* and issue a boil-order when these hydrants are flushed, and whenever distribution pressure drops below 20 psi, in accordance with 35 IL. Adm. Code, Section 607.103. An answering machine is operational during non-working hours. In addition, distribution systems shall be designed to maintain a minimum pressure of 20 psi measured at the ground surface in all parts of the system under fire-fighting demand or other similar emergency operating conditions (35 IL. Adm. Code, Section 653.106). Any future design of the system should take these flow tests into account.

So Noted.

7. The water system has no dedicated auxiliary power supply. Auxiliary generators capable of operating well and chemical treatment pumps or connections to at least two independent public power sources are necessary to provide water pressure during a power outage. At the time of inspection it was reported the supply has portable generators; however, the facility does not have any automatic system alarms and will probably lose pressure before the generator is connected. Provide dedicated auxiliary power as required by Sections 2.6 and 3.2.1.3 of the *Recommended Standards for Water Works.*

Generators are available. An alarm service is being investigated.

8. Maintain the finished water fluoride ion concentration within the required range of 0.9 milligrams per liter (mg/L) and 1.2 mg/L. In the last 12 months *eight* samples have shown levels both above and below the 0.9 to 1.2 mg/L range. In addition, the operator's tested results show an average *0.3* mg/L discrepancy from the Laboratory tested results. Supplemental fluoridation and natural fluoride levels need to be tested and carefully monitored to verify the correct fluoride dosage; and the fluoride test kit must be either correctly calibrated or replaced with an Agency approved model (35 IL. Adm. Code, Sections 611.125, 653.501, and 653.701, and Act 40/7a. of the Illinois Compiled Statutes).

A test kit for use with other additives is being investigated.

9. At the time of inspection the chlorine residual in the phosphate solution was unknown. Please note that stock phosphate solution must be disinfected by carrying 10 milligrams per liter (mg/L) free chlorine residual. This is necessary to prevent bacterial or other growths developing in the solution. Maintain a free chlorine residual of at least 10 mg/L in the phosphate solution as required by 35 IL. Adm. Code Section 653.202 and Section 4.6.5 of the *Recommended Standards for Water Works.*

Chlorine has been routinely added to the phosphate tank for years. The "exact" amount was unknown at the time of inspection. The tank will be tested when servicing the facility.

10. The following refers to Well #2 (ID 20148):

A. The finished water tap for the well is not a smooth-nosed sampling tap. Smooth-nosed sampling taps are necessary so that representative water samples for bacteriological and chemical analyses can be collected. Although the well has a "faucet" type tap, a smooth nose sampling tap is necessary in that this type of sampling tap is easier to keep clean and less likely to harbor bacteria. Install a smooth-nosed sampling tap, in accordance with Section 2.10 of the *Recommended Standards for Water Works.*

B. The tap is not located far enough downstream of chemical injection locations for accurate readings. Install the smooth-nosed sampling tap at least 20 feet downstream of the last chemical injection point, in accordance with Section 4.4.2.12 of the *Recommended Standards for Water Works.*

C. Well #2 does not have a master meter. Master meters are necessary so that accurate data pertaining to daily water usage may be obtained. This data is quite useful for evaluating pump operation, determining operational costs, detecting abnormal water losses on the distribution system, and evaluating the adequacy of the water supply. In addition, meters are necessary both to accurately determine chemical dosages and for the completion of daily operating reports required by the Agency. Install a master meter *in the wellhouse,* in accordance with 35 IL. Adm. Code Section 653.605, and Section 3.2.7.3 of the *Recommended Standards for Water Works.*

D. Well #2 does not have an air line or other way of measuring / monitoring the water levels. The level of water in a well can decline because of over pumping, seasonal variation, or changes to the aquifer's characteristics. Since rapid changes rarely occur, records of the water level in a well can be used to anticipate problems before they create a hardship on the community. Install an air line or other way of measuring / monitoring the water levels at well #2, in accordance with Section 3.2.7.6 of the *Recommended Standards for Water Works.* Once an air line is installed, the supply should test the static water level and pumping water level at least once a month and report these values on the daily operating reports.

A smooth nosed sampling tap will be reinstalled. the present faucet type has delivered good samples. Well #2 has a master meter with the remote reader in the pump house.

The air line should terminate in the top of the pitless unit. The company will investigate.

11. The following refers to construction and operating permits:

A. Please note, in accordance with *35* IL: Adm. Code, Sections 652.10 1 and 653.115, construction permits shall be obtained by the official custodian of a community water supply prior to all alterations, changes or additions to an existing community water supply which may affect the sanitary quality, mineral quality or adequacy of the supply. This includes: *replacement of well pumps which have become inoperable,* replacement of water main, and the installation or relocation of all treatment chemicals. Please call our permit section at 1-217-782-1724 with any questions.

B. Please note the Agency may issue construction and operating permits by telephone (1-217-782-1724), in accordance with 35 IL. Adm. Code, Sections 652.301 and 602.104, if emergency conditions exist which threaten the safety or adequacy of the water supply.

The company has always applied for permits for new construction or additions. During the past forty years, no one has even suggested that a permit was needed to change out a pump. If that is what is required, the company will comply.

12. It was reported the supply has 8,845 feet of 2-inch diameter galvanized main. These small diameter water lines restrict water flow, causing low pressure complaints and possible contamination (via back flow) when multiple residents on the same line are using water. (35 IL Adm. Code Section 653.117). 35 IL. Adm Code 653.203 allows community water systems to be exempt from this standard if the following criteria are met:

a. The water system must meet all Maximum Contaminant Levels and associated monitoring requirements; -
b. Water pressure must be at least 20 psi at all times, and;
c. The components met appropriate standards at the time they were installed.

Please note all replacement main must be a minimum four-inches in diameter, and must be installed with a construction permit.

All of the 2, 4, 6 and 8 inch mains were installed according to plans submitted and permitted. 25 years ago an 8" main was installed on Oakwood Drive to supply the 2" mains at each street intersections (every 240 feet). The topography of the system is such that the 75,000 gallon tower is located at the highest point at an elevation of 890 feet, where the tower provides 43 pounds of pressure to this area. The 2" mains are mostly in an area of 810 to 860 feet of elevation and therefore have from 55 to 75 psi. There is sufficient water and pressure at all times. In 40 years, there has never been a sprinkling ban. I have personally lived on this system since 1960.

13. The community served by the water supply utilizes septic systems. Please note that water mains shall be separated from septic tanks, disposal fields and seepage beds by a minimum of 25 feet, in accordance with 35 IL. Adm. Code, Section 653.119.

This has not been a problem.

14. The supply submitted all of the daily operating reports for each month of 1999 in May 2000. Please note that daily operating reports must be submitted *monthly*. Submit copies of the daily operating reports within 30 days of the end of each month, in. accordance with 35 IL. Adm. Code 653.605.

All monthly reports had been submitted for years in a timely manner. In 1999, the forms were changed, a computer program was installed, and a new computer added to accommodate the program. It took some time and a change in the program before the results could be recorded. The 1999 reports have been forwarded and the 2000 reports to date are included.

15. We have records of a construction permit for which an operating permit has not been submitted (35 IL. Adm. Code 652.201). This project may have been abandoned. Please inform us of the status of the project listed below or provide a copy of the operating permit for the completed project so that we may correct our records:

Permit #: 2184-FY1995 Project Title: Parker's Highlands Subdivision

The Parker's Highlands Subdivision has been completed and it is unknown why an operating permit is not on file. The company will investigate.

RECOMMENDATIONS AND SUGGESTIONS:

16. Remove and properly dispose of the unused asbestos-cement water pipes located underneath the 75,000 gallon elevated tank. Please note your response to our 1997 inspection stated the asbestos-cement water pipes would be properly disposed of within 6 months.

Part of the pipe stored at the site was removed. It is unknown why the balance was not taken. The pipe will be moved before the new storage facility is constructed.

Northern Illinois Utilities, Inc.
7314 Hancock Drive
Box 189
Wonder Lake, Il. 60097
Tel: 815 653-2961
Fax: 815653-2081

RE: Inspection Report of 5-30-00
Facility #111-5850

Page 1 Adequacy of supply

The total capacity of Well #2 is more than triple its present production. Only a 10 HP pump is presently being used.
The existing pump, which only runs 40 per cent of a days time is used for economy. If demand were to increase, the company would install a larger pump.

The population of the system is 886 using the best available information - the U.S. census report. If this is not correct, please furnish proof otherwise.

Page 2 Paragraph #2 - Well # 2 has a static water level of 45 feet with a draw down to 60 feet after pumping at a rate of 110 gallons per minute against a head of 43 pounds.

Paragraph #3- There are several serious untrue statements and misinformation which will be addressed individually.
a. Sample results - It is not true that there is a history of late results. Our testing is considered important and done timely. The company, at additional expense, is currently using a local state certified testing lab, as the State of Illinois IEPA lab had difficulty testing samples in a timely manner after receiving the samples. For further information on the matter, please talk to Mr. Mathews.

Fluoride residuals.
The company has always included fluoride in its treatment. The residuals have been within the U.S. Standards and usually in the much tighter IEPA standard. It is noted that the IEPA no longer includes the words "acceptable" and "unacceptable" on the test results form, but only shows the result.

In the last several months we have changed our brand of polyphosphate which has affected our test results. We are now purchasing a new test kit. Your files should show that during the past 40 years I have received the Certificate of Commendation and Honorable Mention several times for compliance.

Numerous complaints for water shut-off, Not True! I have personally lived on this system since 1960 - 40 years, This system is never shut down on purpose. If on a rare, very rare, occasion a service needs repair our crew will first attempt the repair "live" before valving off a street.

Broken water main which go unrepaired. Not True! I cannot remember ever having a "broken" main on this system. During the past 20 years we have repaired 4 pin hole leaks in the main and 4 leaking services; usually live.

Rusty Water.
What is rusty water??
Does it make a difference if the water remains in a pipe for a day, week or month, before being used?? The NIU well water is good or better than most wells in the state.

The results of a recent survey of all 338 customers received only 9 votes in favor of building a filtration facility. (see attached)

Hydrant test etc;
This sentence should include, that the hydrant was fully open, causing the pressure to drop below 20 pounds. The water company does not provide fire service.

Flush valves - There is only one valve on the system where a hydrant is being installed instead of a cap.

Emergency power is available by rental units.

I believe some of the above misinformation is the result of the IEPA Elgin office using forms that they normally use for complaints, to log messages received from our company and to record calls other than complaints. This was discovered on cross examination at a prior trial.

It is important that all the misinformation be corrected, and not continue in the file.

Copy 3 of 3

Illinois Environmental Protection Agency

Exhibit MLJ-7

Bureau of Water - Division of Public Water Supplies
Inspection Report - Elgin Regional Office

FACILITY NAME	Highland Shores Water Company	FACILITY NUMBER	111-5300
PLANT PHONE	1-815-653-2961	COUNTY	McHenry
INSPECTION DATE	May 30, 2000	INSPECTED BY:	Chris Johnston and Manny Abad

SEND CORRESPONDENCE TO		EXEMPTION / LABORATORY FEE STATUS	
NAME OR ENTITY	Mr. Thomas P. Mathews	CHLORINE (Date)	Not exempt.
ADDRESS	7314 Hancock Drive P.O. Box 189	CERTIFIED OPERATOR (Date)	Not exempt.
CITY, STATE, ZIP	Wonder Lake, IL 60097	LAB FEE PARTICIPANT (Y/N)	No.

CONTACT INFORMATION

CERTIFIED OPERATOR	Mr. Thomas P. Mathews	CLASS	"C"	NUMBER	00956
PHONE:	1-815-653-2961	FAX:	1-815-653-2081		
PORTABLE PHONE:	1-815-482-1401	OTHER:	Home: 1-815-653-7171		
OWNER - RESPONSIBLE PERSONNEL	Mr. Thomas P. Mathews	TITLE OR POSITION	Owner		
PHONE:	1-815-653-2961	FAX:	1-815-653-2081		

OTHER CONTACTS	NAME	TITLE OR POSITION	PHONE
	Mr. Jeff Claus	Vice President	1-815-653-2961
	Mrs. Evelyn Raske	Office Manager	1-815-653-2961
HOME PAGE ADDRESS	None.		

FACILITY STATUS

Open	X	Critical Review		Restricted Status		Reason		Date	

ADEQUACY OF SUPPLY - COMBINED INVENTORIES OF HIGHLAND SHORES AND WONDER LAKE (111-5750)

DATE RANGE	FROM	Jan. 99	TO	Dec. 99	PLANT CAPACITY (MGD)	0.7056 MGD
					LIMITING FACTOR FOR PLANT CAPACITY?	Combined capacities of well #1, well #3, and Wonder Lake (111-5750) well # 1
ANNUAL PUMPAGE (MG)	RAW		?		FINISHED	78.15235 MG
AVERAGE DAILY (MGD)	RAW		?		FINISHED	0.214235 MGD
MAX 7 Day Average (MGD)	RAW		?		FINISHED	0.356829 MGD
Historical MAX 7-Day Average (MGD)	RAW		?		FINISHED	0.356829 MGD
POPULATION	HS: 2,244 WL: 1,442 Total: 3,686				Estimated or Census Data	Estimated
					How was Estimated Population Figured?	3.5 people per connection
AVERAGE DAILY PER CAPITA USAGE:	58 gpppd (low)				Time to Produce Average Daily (Finished)	7.3 hours
					Time to Produce MAX 7- Day Average (Finished)	12.1 hours

SERVICE CONNECTIONS		# METERS	
NUMBER OF DIRECT SERVICES	641	641	
DIRECT SERVICES OUTSIDE CORPORATE LIMITS	0	0	
Residential Customers	641	641	
Commercial Customers	0	0	
Industrial Customers	0	0	
SATELLITE WATER SYSTEMS / INTERCONNECTIONS	**FACILITY NUMBER**	**Source?**	**Customer?**
Wonder Lake Water Company (TAP 02)	111-5750	X	X

BRIEF DESCRIPTION OF SYSTEM AND SERVICE AREA

The Highland Shores Water Company (111-5300) is located in north-central McHenry County, on the southwest side of Wonder Lake. The Public Water Supply consists of two shallow wells, one open interconnection with the Wonder Lake Water Company (111-5750), and one pressure system. The facility has three active TAP's (TAP's 01, 03, and 04). TAP 02/Well #2 (ID 20153) was properly abandoned on 02/21/1997 due to low production. 1

TAP 01 receives water from well #3. Well #3 (ID 20152, rated 110 gpm @ unknown head) was drilled to a depth of 220 feet, tapping a sand and gravel aquifer. The raw water is treated with polyphosphate (WSU 319 diluted 50%) for iron and manganese sequestration, supplementally fluoridated with hydrofluosilicic acid (23% diluted to a 2.3% solution), and disinfected with sodium hypochlorite (12.5% diluted 50%), before passing through a 14,000 gallon hydropneumatic tank and to the distribution system. No air charge is maintained in the 14,000 gallon hydropneumatic tank, which is considered "in-line" storage. Well #3 has an iron concentration of 0.82 mg/L, a manganese concentration of 0.1 mg/L, a hardness concentration of 313 mg/L as $CaCO^3$, and a natural fluoride concentration of 0.21 mg/L. Well #3 was formerly known as well #1. 2

TAP 03 receives water from well #1. Well #1 (ID 00595, rated 170 gpm @ unknown head) was drilled to a depth of 265 feet, tapping a sand and gravel aquifer. The raw water is treated with polyphosphate (WSU 319 diluted 50%) for iron and manganese sequestration, supplementally fluoridated with hydrofluosilicic acid (23% diluted to a 2.3% solution), and disinfected with sodium hypochlorite (12.5% diluted 50%), before passing to the distribution system. Well #1 has an iron concentration of 0.08 mg/L, a manganese concentration of 0.16 mg/L (exceeds the MCL), a hardness concentration of 332 mg/L as $CaCO^3$, and a natural fluoride concentration of 0.18 mg/L. Well #1 was installed with IEPA construction permit 0230-FY1988. No operating permit has been obtained. Well #1 was formerly known as well #3. Prior to the construction of well #1 (ID 00595), a well was drilled approximately south of the intersection of West Meadow Lane and Oriole Trail. This well (ID 00237) is listed in our inventory as inactive. 3

TAP 04 consist a connection to the Wonder Lake Water Company (111-5750) through a 6-inch main (the 6-inch main connects to a Highland Shores 4-inch main). The capacity of this connection is unknown. Water has the capability to either flow into the Highland Shores water system, or to the Wonder Lake Water Company; however, the Highland Shores Water Company is located at a higher elevation and under normal operating conditions all water flows from Highland Shores and to Wonder Lake. Due to the open connection, the Highland Shores Water Company and the Wonder Lake Water Company can be considered one water system. The Wonder Lake Water Company consists of one well rated gpm @ feet TDH, a 6,000 gallon hydropneumatic tank, and a 10,000 gallon hydropneumatic tank. No air charge is maintained in either tank (considered by the supply to be "in-line" storage). Reported disagreement among the residents of the two systems has kept the supplies separate. 4

The supply has had a history of late sample results, not maintaining proper fluoride residuals, and numerous complaints for not issuing boil-orders, water shut-offs without notice, rusty water, black water, water with strange odors, and low pressure. The low pressure complaints are primarily situated on the western portion of the distribution system. Hydrant tests by the ICC show flow pressures below 20 psi at some locations, and distribution system pressure recorders show periodic pressure drops below 20 psi. The supply has "flush valves," or gate valves which when opened discharge water directly below ground (the main behind the valve is not capped). The facility is under enforcement for not providing enough storage. In addition to the 14,000 gallon hydropneumatic tank at TAP 01, storage consists of a 45,000 gallon elevated tank. The distribution system consists of 34,013 feet of 4-inch, 1,700 feet of 6-inch, and 750 feet of 8-inch asbestos cement main. There is a reported 85 feet of elevation difference between the high and low portions of the distribution system. No dedicated emergency power is provided for the supply, and the facility does not have any system alarms. The community is served by septic systems. A free chlorine residual of 0.9 mg/L was measured in the distribution system on the day of inspection. 5

TREATMENT APPLICATION POINT SUMMARY

TAP #	Location or Description	Source Name	Source ID	Status (A, I or X)	Well Depth	Casing Length	Aquifer	Current Production (GPM)	GWUDI Eval. (DATE)	Waivers	
										VOC	SOC
01	*8805 Shady Lane - also known as the "squad house."	Well #3	20152	A	220 feet	210 feet	Sand & Gravel	110 gpm @ unknown head and 10 Hp	Never submitted information	Not received	Not received

Source Use (Disconnected sources, backups, seasonal use, etc)	One of two main sources of water for the supply.
Bacteriological History (Raw water samples)	No raw water detections in the last 12 months.

TREATMENT

Disinfectant Used	Fluoridation Chemical Used	Other Chemical Addition	Well Inorganic Statistics:
Sodium hypochlorite (12.5% diluted 50%)	Hydrofluosilicic acid (23% diluted to a 2.3% solution)	Polyphosphate (WSU 319 diluted 50%)	Iron conc.: 0.82 Mg/L Manganese conc. 0.1 Mg/L Hardness as $CaCO_3$: 313 Mg/L pH: 7.4 Natural Fluoride conc.: 0.21 Mg/L

Installation Deficiencies	General Condition of Plant
1. Well #3 does not have an airline. 2. The fluoride, phosphate, and chlorine day tanks do not have protective curbings nor containment. 3. The vent for the chlorine solution tank is disconnected. 4. No dedicated auxiliary power. 5. The phosphate solution may not have a 10 mg/L free chlorine residual. 6. The 14,000 gallon hydropneumatic tank does not have bypass piping. 7. The wellhouse roof is damaged and leaking.	Fair.

Other Comments regarding this TAP	*Well #3, a 14,000 gallon hydropneumatic tank, and a 45,000 gallon elevated tank are at this location. Well #3 was formerly known as well #1. The supply has had numerous black water complaints, which indicates the polyphosphate treatment is inadequate, the current flushing program is inadequate, or both are inadequate. It was reported well #3 could pump 220 gpm with a 20 horsepower pump.	**Emergency Power**	None dedicated. The supply reportedly has portable generators, but no system alarms.

TREATMENT APPLICATION POINT SUMMARY

TAP #	Location or Description	Source Name	Source ID	Status (A, I or X)	Well Depth	Casing Length	Aquifer	Current Production (GPM)	GWUDI Eval. (DATE)	Waivers	
										VOC	SOC
03	Well #1 at 9021 Memory Trail	Well #1	00595	A	265 feet	255 feet	Sand & gravel	170 gpm @ unknown head and 20 Hp	Never submitted information	Not received	Not received

Source Use (Disconnected sources, backups, seasonal use, etc)	One of two main sources of water for the supply.
Bacteriological History (Raw water samples)	No raw water detections in the last 12 months.

TREATMENT

Disinfectant Used	Fluoridation Chemical Used	Other Chemical Addition	Well Inorganic Statistics:
Sodium hypochlorite (12.5% diluted 50%)	Hydrofluosilicic acid (23% diluted to a 2.3% solution)	Polyphosphate (WSU 319 diluted 50%)	Iron conc.: 0.08 Mg/L *Manganese conc. 0.16 Mg/L Hardness as $CaCO_3$: 332 Mg/L pH: 7.14 Natural Fluoride conc.: 0.18 Mg/L

Installation Deficiencies	General Condition of Plant
1. Well #1 does not have: a smooth-nosed finished water tap, a pressure gauge, an airline, and the annular opening at the top of the casing (where the electrical wires enter well #1) is not tightly sealed 2. The fluoride, phosphate, and chlorine day tanks do not have protective curbings nor containment. 3. Well #1 does not have an operating permit. 4. No dedicated auxiliary power. 5. The wellhouse roof is damaged and leaking. 6. The phosphate solution may not have a 10 mg/L free chlorine residual.	Fair.

Other Comments regarding this TAP	*Well #1 exceeds the manganese MCL, and polyphosphate is provided for treatment. The supply has had numerous black water complaints, which indicates the polyphosphate treatment is inadequate, the current flushing program is inadequate, or both are inadequate. Well #1 was installed with IEPA construction permit 0230-FY1988. No operating permit has been obtained. Well #1 was formerly known as well #3.	**Emergency Power**	None dedicated. The supply reportedly has portable generators, but no system alarms.

TREATMENT APPLICATION POINT SUMMARY

TAP #	Location or Description	Source Name	Source ID	Status (A, I or X)	Well Depth	Casing Length	Aquifer	Current Production (GPM)	GWUDI Eval. (DATE)	Waivers	
										VOC	SOC
04	Connection to the Wonder Lake Water Company at 3513 Westwood Drive	*Well #1	20149	A	180 feet	170 feet	Sand & Gravel	Unknown	Never submitted information	Expires 12-31-2001	Expires 12-31-2001

Source Use (Disconnected sources, backups, seasonal use, etc)	Due to elevation differences, under normal circumstances, water flows from Highland Shores to Wonder Lake.
Bacteriological History (Raw water samples)	Facility is not required to sample at this location.

TREATMENT

Disinfectant Used	Fluoridation Chemical Used	Other Chemical Addition	Other Treatment:
None.	None.	None.	None.

Installation Deficiencies	General Condition of Plant
None - underground connection.	Underground connection.

Other Comments regarding this TAP	*TAP 04 consist a connection to the Wonder Lake Water Company (111-5750) through a 6-inch main (the 6-inch main connects to a Highland Shores 4-inch main). The capacity of this connection is unknown. Water has the capability to either flow into the Highland Shores water system, or to the Wonder Lake Water Company; however, the Highland Shores Water Company is located at a higher elevation and under normal operating conditions all water flows from Highland Shores and to Wonder Lake.	Emergency Power	None.

Service Area / Pressure Zone / Distribution System					
Water Source(s)	TAP 01, TAP 03, and TAP 04				
Location or Description	Service Area Population	No. of Service Connections	Finished Water Storage (Show Capacities)		
			Ground	Elevated	Hydropneumatic
Entire Highland Shores Distribution system	2,244	641	None	45,000 gallons. It was reported the elevated tank overflows at 43.5 psi.	*The supply has a 14,000 gallon hydropneumatic tank at TAP 01; however, no air charge is maintained. The tank is considered "in-line" storage.

Maximum System Pressure	Location	Minimum System Pressure	Location	Free Chlorine Residual (mg/l)	Location
75 psi	Intersection of West Lake Shore Drive & Acorn	42 psi	Elevated Tank	0.9 mg/L	Distribution system

Flushing Program				Fire Protection Provided?		Current Map Available?		Valve Maintenance Program			Notes and Other Observations
None	Yearly	2 x year	More Often	No	Yes	No	Yes	No Valves	No Program	OK	
			Monthly	X			X			X	*The supply has an open connection with the Wonder Lake Water Company. Water can flow to either supply based on demand. The supply has had numerous black water complaints, which indicates the polyphosphate treatment is inadequate, the current flushing program is inadequate, or both are inadequate. The distribution system consists of 34,013 feet of 4-inch, 1,700 feet of 6-inch, and 750 feet of 8-inch asbestos cement main. There is a reported 85 feet of elevation difference between the high and low portions of the distribution system. Not all hydrants have auxiliary valves.

Hydrant locations with flow pressure below 20 psi - ICC Hydrant Inspection Report for October 1998				
Hydrant Number	Location	Static Pressure	Flow Pressure	Gallons per minute
18	Between Vine Avenue. & Oriole Trail on Pleasure Lane	60 psi	5 psi	340 gpm
17	Between Evergreen & Oriole Trail on Thompson	78 psi	15 psi	630 gpm
16	Between Evergreen & Pine on Meadow Lane	60 psi	5 psi	425 gpm
3	Thompson & Acorn	43 psi	8 psi	530 gpm
2	Between Acorn & Ramble on Meadow Lane	40 psi	3 psi	400 gpm
1	Between Highland & Woody on Meadow Lane	40 psi	5 psi	340 gpm

Operating Reports / Records

Monthly Reports Being Submitted?			Content of Monthly Reports								Notes and Other Observations
			Report for each TAP?		Daily Production from Each Well?		Daily Measured Residuals?		Daily Dosage Calculations?		
Yes	No	Late	Yes	No	Yes	No	Yes	No	Yes	No	
		*X	X		X		X		X		*Daily operating reports are sent one time per year.

Cross Connection control Ordinance						
Does the system have an ordinance?		Date Approved (by IEPA)	Program Enforced?		Do Private Wells Exist in the Service Area?	
Yes	No		Yes	No	Yes	No
X		11-18-1994	X			X

Monitoring

Bacteriological Summary

Monitoring History (Last 12 Months)				Primary Lab	Phone	FAX	
	Raw	Finished	Distribution				
Number of Samples	24	0	26	McHenry Analytical	1-815-344-4044	1-815-344-2208	
Number Satisfactory	24	0	26	Secondary Lab	Phone	FAX	
Number Invalid	0	0	0				
Number Unsatisfactory	0	0	0	None	N/A	N/A	
Fecal / E. Coli Positive	0	0	0	Coliform Monitoring Plan Approved?	All Major Portions of system included in Plan?	Chlorine Residuals taken at Sample Sites?	Monitoring FREE Residual?
				Yes / No	Yes / No	Yes / No	Yes / No
Monitoring Violations	0	MCL Violations	0	X	X	X	X / X

Fluoridation Summary (Last 12 months)

TAP No.	No. of Samples	Minimum (mg/l)	Maximum (mg/l)	Average	Violations (list months)	Notes and Observations (Fluoridation)
Dist.	12	0.43 mg/L	1.85 mg/L	0.94 mg/L	January, February, April, August	The supply has had a history of not being able to maintain the fluoride dose in the required range. The lab versus operator test results show an average discrepancy of 0.3 mg/L.
01	?	?	?	?	?	Could not find results.
03	?	?	?	?	?	Could not find results.
04	N/A	N/A	N/A	N/A	N/A	Wonder Lake (111-5750) receiving point.

Viability / Financial Management

Service Fee (Minimum Charge)	$5.03 per month	Other source(s) of income used to maintain the water system	None
Direct Charge (cost per 1,000 gallons)	$1.76	How does the utility handle customers who fail to pay water bills?	Overdue notice, final notice, home visit for collection, service disconnection
Billing Frequency	Bi-monthly	Does the utility have a fund to cover major repairs?	No
ICC Regulated? (Y/N)	Yes	Name and phone no. of person responsible for system repairs.	Mr. T.P. Mathews 1-815-653-2961
Date of Last Rate Increase	June 1999		

PWS Basic Facility Characteristics Change Form

Facility Number: **111-5300** Facility Name: **Highland Shores Water Company**
Effective Date: **ASAP**

Current Record		Change To
	No. of Service Connections	641
	Population Served*	2,244
	Coliform Samples (RAW)	2 Well #1 (ID 20152) Well #3 (ID 00595)
	Coliform Samples (FINISHED)	0
	Coliform Samples (Distribution)	2
	No. of Fluoride Bottles to be sent☆	None
	List TAP No(s) to be monitored for Fluoride	TAP 01 TAP 03
	No. of Coliform Bottles to be Sent	4
	Bottle Recipient Address	Highland Shores Water Company P.O. Box 189 7314 Hancock Drive Wonder Lake, IL 60097

* Basis of Population and/or Service Connection Change (i.e., 100 homes X 3 People):

☆ Complete only if Participant in Lab Fee program and Supply Requests use of IEPA laboratory for analysis.
❄ Address must be useable for both US Mail and UPS delivery. If Necessary, List Both.

DATE: June 16, 2000 IEPA Personnel: Chris Johnston and Manny Abad

Mail completed form to Marilyn Turner, IEPA/BOW/CAS/#19, Springfield, IL 62794-9276

FYI - Answers to Commonly Asked Questions

The **number of distribution samples** required is determined by the population served by the water system (**35 IL. Adm. Code 611, Table A**). Additional distribution samples may be required by IEPA to accommodate separate distribution systems.

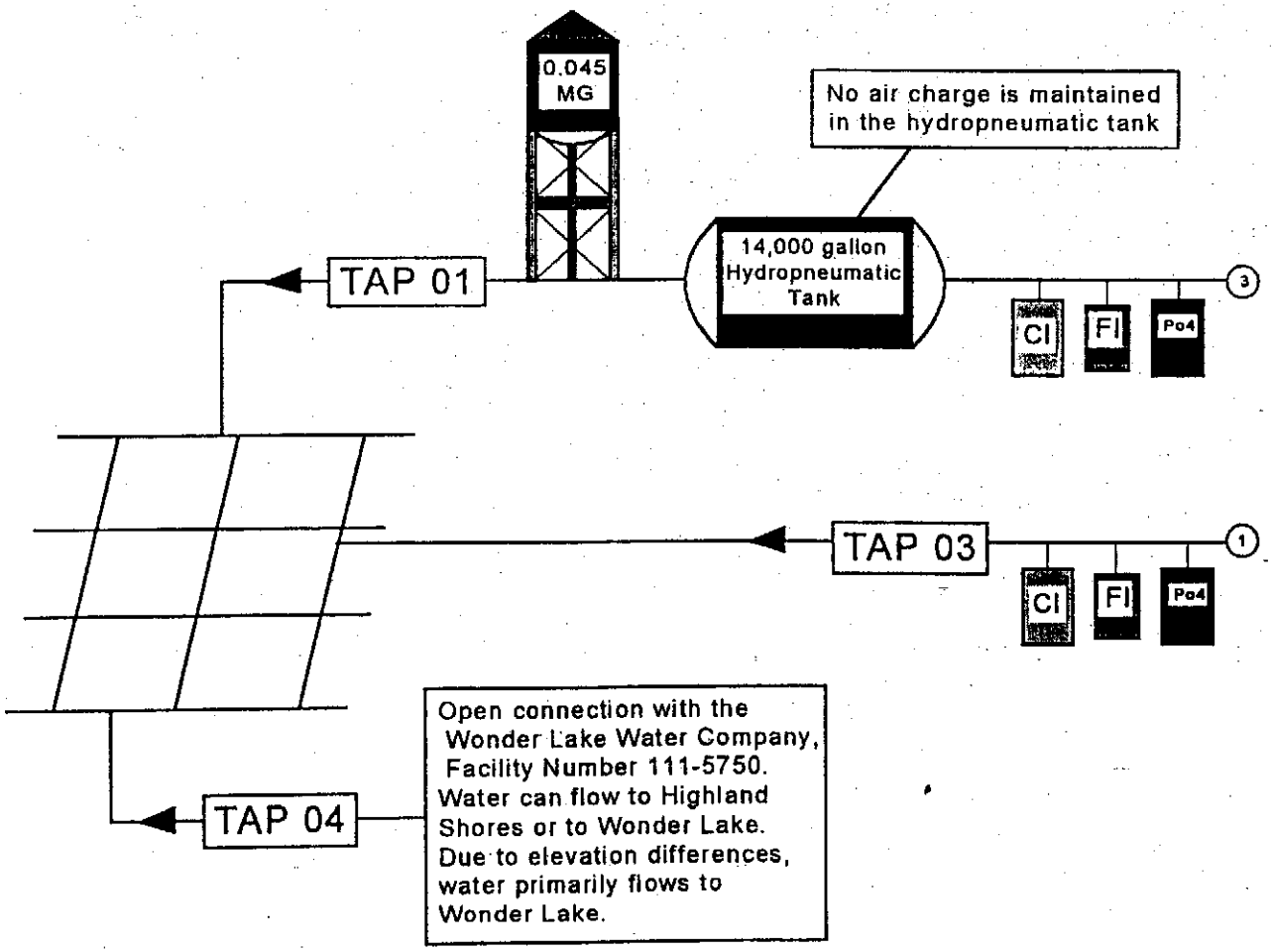
Raw samples are required for systems that add a disinfectant, since problems with the wells or treatment processes may not be detected by distribution samples.

Backup wells that are not in routine use should be monitored quarterly. If an unmonitored well must be used, a boil order must be issued.

Water samples that are **invalidated** by the laboratory cannot be used for compliance. Invalid water samples must be replaced to avoid a monitoring violation.

REPEAT sampling must be provided for ALL distribution samples found to contain coliform bacteria. Repeat sampling consists of three additional samples. One of the three samples should be taken from the location giving the original positive result. A second sample must be collected from an UPSTREAM location that is within 5 service connections, and the third sample taken from a DOWNSTREAM location, that is also within 5 service connections of the original sample point. If repeat samples are not collected, IEPA must "credit" the water system with three additional positive results.

Highland Shores Water Company
McHenry County - 111-5300



Well #3
ID 20152
Status: Active
Capacity: 110 gpm
Aquifer: Sand & Gravel

Well #1
ID 00595
Status: Active
Capacity: 170 gpm
Aquifer: Sand & Gravel

Colors in accordance with *Recommended Standards for Water Works*, Section 2.14

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